

**Nebraska Information Technology Commission
Community Technology Fund 2001**

Application Form

Section I: General Information (Required)

Project Title: Telehealth

Name of Submitting Entity: Nebraska Commission for the Deaf and Hard of Hearing

Project Contact Information:

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Certification for Request

I certify that to the best of my knowledge the information in this application is correct and that the application has been authorized by this entity to meet the obligations set forth in this application.

Authorized Signature: 

Typed Name: Tanya D. Wendel

Title: Executive Director

Name of Entity: Nebraska Commission for the Deaf and Hard of Hearing

Date: February 16, 2001

Total State Funds Requested: \$38,472.00

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Section II: Executive Summary (Required)

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The Nebraska Commission for the Deaf and Hard of Hearing is establishing a video conferencing network (Telehealth) to provide access to higher quality video connections that allows for signing or interpreting at a distance throughout the state of Nebraska. This project will install an additional T1 circuit, operating video at 768 Kbps, to the western part of the state. An innovation grant allowed the Commission to plan and evaluate demonstrations and training using video technology to determine that using video conferencing systems was adequate for mental health services for deaf and hard of hearing people, which will expand services throughout Nebraska.

This project will allow for the expansion of the Telehealth system to Western Nebraska and the purchasing of additional bandwidth and equipment from Lincoln to the Panhandle area to support providing higher quality video. The videoconferencing system-PictureTel incorporates the latest techniques in digital signal processing to provide the highest quality video/audio to connect and display information from a users local area data network or laptop computer. The Commission will have a dedicated connection of the Commission's two facilities to the Nebraska Video Conference Network and the NEB SAT network.

Section III: Goals and Objectives (Required)

The project will expand the connection of the Commission's facilities to Western Nebraska through expanded operating video to the Nebraska Video Conferencing Network (NVCN) and the NEB SAT network.

Goal 1.0: To provide Western Nebraska consumers expanded access to signing and interpreting at a distance and provide mental health training, education and specialists who communicate in sign language and are knowledgeable in deafness and hearing loss through video mediums.

Obj 1.1: To purchase and install a network connection from Lincoln to the Panhandle to support the higher bandwidth required for providing higher quality video.

Obj 1.2: To purchase and install an additional videoconferencing system-PictureTel for a Panhandle site.

Obj 1.3: To offer distance counseling using a licensed specialist in hearing loss and deafness.

Obj 1.4: To offer sign language interpreter services.

Obj 1.5: To offer educational seminars/training on deafness and hearing loss and services offered through NCDHH.

Obj 1.6: To conduct quarterly prevention/education programs to consumers.

Obj 1.7: To encourage and train on the use of Telehealth to deaf and hard of hearing people.

Obj 1.8: To collaborate with existing video conferencing centers such as educational service units, distance learning centers, colleges, hospitals and existing video conferencing facilities.

Relationship to entity's comprehensive technology plan: Video communication is a viable method for delivery of mental health, education and interpreter services especially in the remote areas of the state.

The following goals related to technology for the agency include: 1.0 Maintain and disseminate information and data relating to deafness and hearing loss to the general public through video mediums. 2.0 To offer distance counseling using specialists in hearing loss and deafness. 3.0 To enhance programs and services to deaf and hard of hearing people in underserved areas of the state. 4.0 To ensure full access for deaf and hard of hearing people to services throughout the state. 5.0 To improve the efficiency and responsiveness of the Commission through enhanced information technology and through usage of video delivery mediums.

Project's objectives and how they support the goals of the NITC: Related to NITC-1: Video communication is a viable method for delivery of mental health, education and interpreter services in that the transmission speed is comparable to full motion video. This relates to the projects objectives 1.0 – 5.0. This project may prove an effective way of providing services to rural Nebraska deaf and hard of hearing people since a majority of specialists reside in either Lincoln or Omaha. Currently, mental health services are non-existent with specialists that sign in Western Nebraska. It is also a more efficient method of delivering services to Western deaf and hard of hearing citizens since the Commission for the Deaf and Hard of Hearing does not have an office, the staff must commute monthly to the Scottsbluff area and communities in the Panhandle area from Omaha or Lincoln.

Related to NITC-2: This project will broadcast to various communities throughout the state, thus broadening exposure both to deaf and hard of hearing people, providers of service and the general public. The Commission has developed collaboration with distance learning centers, the University of Nebraska Medical Center, several mental health clinics, and medical facilities through the piloting of this technology. With the passage of the Americans with Disabilities Act it is imperative that technology advance and access to services be equally accessible to deaf and hard of hearing people.

Related to NITC-3: As stated earlier, we have formed collaborations with educational programs, health care facilities and government entities such as Health and Human Services. The Commission has collaborated with national experts to determine if video communication is effective. Currently, other states such as South Carolina is using TeleHealth to treat and counsel their patients. This medium is being broadened into the

area of relay interpreting thus providing another viable avenue for economic development and information exchange. Private grants can be sought to broaden and expand the use of video communication with deaf and hard of hearing people.

Related to CC-1, CC-2, CC-3, CC-4: This relates to the entire project's objectives since it is broadening and insuring more ready access to services, providing training to counselors and deaf and hard of hearing people, and sign language interpreters, which develops a more knowledgeable work force in video technology. In addition, the agency's staff are gaining a working knowledge of video technology and its' applications. The entire project is centered on awareness. The T-1 circuit, operating at 768 Kbps that will be installed is between the Lincoln facility, and the Division of Communication switch in Lincoln. This circuit allows for connection of our facility (NCDHH) to any other videoconferencing system on the NVCN network and to the NEB*SAT network.

Related to EC-2, EC-5, EC-6: This relates to project objective 5.0 and 6.0 which provides for training opportunities for not only mental health practitioners but counselors and educators working in the public schools. The topics for training are recommended by the Mental Health Advisory Council covering a diverse range of issues. The agency has developed linkages with ESU's-educational service units, distance learning centers, and the Regional Programs for Deaf and Hard of Hearing Children since many classrooms have distance education. The technology needed for providing sign communication must be as close to real-time transmission. We have worked with NETV, UNMC, and technicians at the ESU-service pods, Division of Communications, QWEST and Alltel.

Related to SGC-2, SGC-3, SGC-4: Collaboration has been developed with mental health counselors, educators, Nebraska Department of Education, Health and Human Services, Nebraska Educational Telecommunications (NETV), and private entities. In order to expedite bureaucracy, all plans have been approved and developed in cooperation with a Mental Health Advisory Committee comprised of professionals, mental health counselors, and members from the deaf and hard of hearing community. A major component of the project is to provide quarterly training sessions to mental health professionals and the community.

Section IV: Scope and Objectives

Beneficiaries of the project: Deaf and hard of hearing people according to the National Center for Health Statistics (NCHS) of the U.S. Department of Health and Human Services, estimates that 8.6 percent of the population has a hearing loss. The population of Nebraska is approximately 1.6 million, which would equate to 137,600 individuals with a hearing loss. *"The elderly were more likely than any other age group to have hearing problems, persons 65 years and older are eight times more likely to have hearing impairment than persons ages 18-34 (i.e., 3.4 percent of the population ages 18-34 have hearing impairment, compared to 29.1 percent of the population 65 and older)."* For individuals with a profound hearing loss who generally communicate through sign language, the estimate for Nebraska is 7,840 deaf individuals. Additional people may be

added to that number when we consider that hearing loss or deafness affects the entire family and it's dynamics. Relating to mental health services for deaf and hard of hearing people, qualified mental health specialists are available primarily in the eastern part of the state. With the shortage of specialized counselors in deafness and hearing loss most individuals living in central and western Nebraska go untreated or are misdiagnosed and receive inappropriate care in getting their mental health needs met.

Attitudes toward health care influence the ways in which individuals in any community seek, utilize, and benefit from services. Consequently, the provision of accessible and compassionate health care demands that clinicians possess an acute understanding of the beliefs and view points, prevalent in the communities in which they work. (Groce & Zola, 1993; Helman, 1984; National Public Health & Hospital Institute, 1994).

Expected outcomes: Through the use of video communication, mental health services, education, training, and interpreting services can be expanded to serve sectors of the state that lack competent specialists in deafness and hearing loss. The Commission will offer quarterly training and awareness throughout the state in the area of deafness and hearing loss in order to increase an awareness, understanding and interest in developing more specialists.

Measurement and assessment methods: A questionnaire will be used to collect baseline data on the interaction between the specialist and the consumer/client. Consumers will be asked to complete a questionnaire noting their satisfaction of the services following the usage of the technology. Specialists and consumers, both of those who experienced the use of Telehealth and those who have not, will be invited to participate in a focus group. The Commission staff will moderate the focus group.

Significant constraints: Collaboration with existing video communication technology will enhance the coverage area. A major constraint is using systems within the educational service units/distance learning centers and training institutions since these centers are highly used, scheduling and quick access is difficult to achieve. Having access to immediate mental health counseling is crucial in certain situations. Cost for using existing NEB SAT or the Nebraska Video Conference Network may be a factor dependent on program finances. There also are bandwidth limitations with existing NVCN networks since they are 384 Kbps rather than 768, which provides for better transmission of signage.

Significant assumptions: Based on a one-year pilot project that was done with the University of Arkansas-Rehabilitation Research and Training Center for Persons who are Deaf or Hard of Hearing, the study revealed that using the bandwidth of 768 Kbps communications was most effective in providing mental health services via video conferencing. The project reported that the bandwidth was well received by deaf and mental health counselors. The strengths are summarized as the following: 1) if a person lives far that person can get a counselor; 2) it was like you were in the same room together having a session.

Section V: Project Justification

Cost/benefit analysis: Installation and maintenance of a T-1 line within the Panhandle area includes a monthly reoccurring cost of approximately \$500.00 and a CPE (router, Ethernet, switch and CSU/DSU), installation \$3,250, PictureTel system cost is \$19,208. The life cycle for PictureTel is ten years.

Impact: Nebraskans will be impacted by the broadening of services and access to specialists in the area of deafness and hearing loss. Training and services outside of the Lincoln and Omaha area will be delivered through video communication as much as possible.

The new system will reduce the travel needed to the Western part of the state. Currently, staff commute to the Scottsbluff area on a monthly basis, it requires two days of travel and three-days of service delivery. It will allow the staff to dedicate more time to plan broadening video service delivery through the time saved in commuting.

For the past three years, the Commission has had a contract with the Nebraska Educational Assistive Technology Center in Cozad and their partners in Western Nebraska. The contract can be significantly reduced through the use of video technology; possibly, by a reduction of \$24,900.

Other solutions: The Commission has attempted for ten years to get an office in Western Nebraska without receiving the general funds that are needed to do so. One solution tried is a contract with the center in Cozad; even though, this is more effective for providing services to Western Nebraska, center staff lack expertise in the area of deafness and hearing loss. The state and our agency have the responsibility of serving the entire state in providing equitable services for all Nebraskans. It is more effective to provide specialists through technology and video communication thus reducing travel monies and reducing personnel commuting.

Compliance-state or federal mandates: The Americans with Disabilities Act (ADA) is landmark civil rights legislation prohibiting discrimination in almost every aspect of society. State and local governments must ensure effective communication with individuals with disabilities. For individuals with a hearing loss, public entities must provide appropriate auxiliary aids. The government may have to provide special equipment, or modify its existing equipment, to make sure that deaf people can communicate effectively and have an equal opportunity to participate in governmental services.

Section VI: Implementation

Project Sponsor: The Commission is establishing a Telehealth System Fund through legislative enactment. The Commission will assume the responsibility of setting and charging reasonable fees for the use of the Telehealth system. The fund will be used for any expenses related to the operation of the system.

Project Team: The team consists of the Commission's mental health specialist, executive director, business manager, and staff assistant(s). The mental health specialist is responsible for needs assessments and recommends programs and services needed for deaf and hard of hearing people. The specialist coordinates and conducts training to insure that mental health services are accessible to deaf and hard of hearing people. The specialist must have a Masters degree in behavioral science or experience in a related field may substitute for a Masters degree on a year-for-year basis. The specialist has worked in the field for over 20 years with advanced experience in the area of alcohol and drug treatment. The director is responsible for oversight and review of activities. The director has a Masters degree in Administration. The business manager establishes and maintains proper systems of accounting and purchasing and reviews budgetary allotment records in control of expenditures. The staff assistant has expertise in computer technology and lends support to the scheduling, training and maintenance of the equipment.

Major Milestones: The Commission has already accomplished a major milestone through conducting a pilot project to determine if the use of video conferencing is effective in conducting mental health sessions. The design and development of the collection of data was done in cooperation with the University of Arkansas Research and Training Center for Persons who are Deaf or Hard of Hearing-RRTC. RRTC is just completing a technical report. The results will be disseminated to various publications. A draft of the technical report was presented to the Mental Health Advisory Committee in the Area of Deafness and Hearing Loss on December 5, 2000. The study revealed that consumers and counselors are willing to use video communication for therapy sessions. The respondents were most satisfied with the 768 Kbps speed for the ease in sign communication. All respondents indicated that they would like to see services made available through Telehealth.

Milestone: 1) Establishing collaborative agreements with existing counselors and service providers regarding their participation in Telehealth or using existing technology.
(Completed)

2) Conduct therapy sessions through various state transmissions ranging from broadcast quality video, the state video conferencing system and satellite systems through collecting data on the delivery mechanism. (Completed-December 5, 2000)

3) Purchase equipment and installation of T-1 lines in the Lincoln and Omaha office.
(Complete by March 2001)

4) Design a brochure and promotional materials regarding Telehealth. (Complete by June 2001)

5) Broaden coverage of video conferencing equipment to the Panhandle area of the state.
(Complete by September 2001)

6) Broaden the use of video conferencing to include sign language interpreter services.
(Complete by December 2001)

7) Conduct training, counseling and education through the use of video technology.
(Ongoing)

Training and Staff Development: The PictureTel 970 equipment will be purchased and maintained through a service agreement with QWEST, Omaha. QWEST personnel- Roger Bartlett will be providing an in-service and training regarding the operation and use of the system. The above personnel will receive a one to two day training.

Maintenance: The equipment will come with a three-year maintenance agreement, which will be through QWEST.

Section VII: Technical Impact

Describe the hardware, software, and communications requirements: The videoconferencing system is the PictureTel 970 series. The PictureTel system uses the latest techniques in digital signal processing to provide the highest quality video and audio and the ability to connect and display information from a users local area data network or laptop computer without requiring additional equipment. The equipment includes the following: INTEL Pentium III computer and Windows NT operating system; H320 AND H323 compliant system with 14 KHz siren audio and supports the lower bandwidth 7 KHz G. 722 and 3., 4 KHz G. 711 audio standards; camera system with motorized pan-tilt-zoom; power mic-360 degree radius; SVGA 32/34" monitor and SVGA projection system with 1900 lumen light output; and, cart with Bose speakers and amplifier system. The network will allow the Commission to link the Lincoln and Omaha facilities to the rest of the state's Video Conference Network and NEB SAT's satellite network. This proposal is to purchase bandwidth from Lincoln to the Panhandle area. A T-1 circuit will be installed, operating video at 768Kbps.

Rationale: The needs of the users, which includes deaf and hard of hearing people that must depend on viewing signing and lipreading through video mediums was tested through a pilot study. As outlined above, the study concluded the need for having higher bandwidth video, operating at 768Kpbs.

Issues relating to reliability, security and scalability: This system is state of the art, through the maintenance agreement-any enhancements to the software will be provided. PictureTel 970 is compatible with the systems being used by the state. The router and hub are secure within the state system; the hubs will be installed in a wiring closet within the Commission's respective office locations. This system can be used within a classroom through using a PictureTel Projector or additional monitors.

Industry Standards: The proposed videoconferencing system is compatible with all existing terrestrial and satellite videoconferencing systems in Nebraska, the United States and internationally.

Risk Assessment: Through an innovation grant received by the Commission, there has already been a study completed on the feasibility of using video technology for sign communication. In fact, deaf and hard of hearing consumers were very supportive of conducting counseling sessions through video conferencing. A major advantage to consumers is not having to commute to either Lincoln or Omaha when needing a specialist. A risk was in knowing if the technology would be adequate for sign communication, which has been completed. Another risk was if specialists would use this medium, which has been confirmed that they will take advantage of video conferencing as a means for conducting counseling sessions. The agency is just completing a brochure that explains Telehealth, which will be sent to consumers and professionals throughout the state. Quarterly trainings will be offered to specialists and consumers regarding the use of video conferencing to broaden the use of the system.

If the project is not completed as proposed, expansion of services to Greater Nebraska will not happen as readily. Without a dedicated circuit to the Panhandle; currently, the state conferencing equipment is running at a speed that is not conducive for sign communication. The agency does not have an office in Western Nebraska, and is traveling to Scottsbluff and surrounding communities throughout the month, each trip to Scottsbluff costs about \$425.00. Through video enhancement, contracting for services will be eliminated or greatly reduced by as much as \$25,000/year. Video technology will allow for a reduction in agency travel, provide for service expansion to rural communities (Greater Nebraska), and make services and specialists more accessible to deaf and hard of hearing people throughout the state. Traditionally underserved people who are deaf often lose out in terms of getting their service needs met because they are unaware such services exist, and because of the lack of culturally competent services. It is estimated that only 2% of deaf Americans in need of mental health services actually receive them (Vernon, 1983). Consumers should have the opportunity to meet with a specialist who can provide the following: 1) communicate in sign language, 2) understand the cultural needs in treating the deaf, and, 3) offer prevention programs. For deaf individuals especially, sign communication is critical since they are communicating in another language, called American Sign Language. This technology will be able to bridge the gap that exists in rural and Greater Nebraska through technology advancements. This results in the consumer having a stronger sense of self by feeling supported and less alone. If this project is not completed as proposed by expanding accessible services to Greater Nebraska, barriers will continue to prevent consumers from living as independently as possible, achieving at their greatest potential and attaining a quality of life that is satisfying and deserved.

Section IX: Financial Analysis and Budget (Required)

	CTF Grant Funding	Cash Match (5)	In-Kind Match (6)	Other Funding Sources (7)	Total
Personnel (1)					
Contractual Services					
• Design					
• Programming and Testing			\$25, 112		
• Project management, evaluation, and quality assurance			\$7,242		
• Other (2)					
Capital expenditures (3)					
• Hardware Acquisition	\$19,208				
• Software Acquisition					
• Network costs	\$15,816				
• Other	\$1,948				
Other Costs	\$1,500				
Telecommunications					
Supplies and materials					
Other operating (4)					
Travel					
TOTAL	\$38,472		\$32,354		

Section IX: Financial Analysis and Budget (Required)

In-Kind Match: The following staff of the Commission for the Deaf and Hard of Hearing will provide an in-kind match: 1) Mental Health Specialist will be responsible for the program goals and activities. They will spend 50 percent of their time on this function and providing services through Telehealth-in-kind match is \$25,112/year or \$2,092.65/month. 2) Executive Director will be responsible for the management and oversight of the project, they will spend 5 percent of their time,-in-kind match is \$3,313/year. 3) Business Manager will be responsible for paying the bills and ordering the equipment, she will spend ten percent of her time-in-kind match is \$3,929/year.

Capital Expenditures: Hardware Acquisition of \$19,208 will include the following hardware purchases:

1. PictureTel 970 VideoConferencing System-Premier Cart, Bose Audio System, 34" Monitor, Camera 80 Auto PTZ, ImageShare.
PN: PT970—N-1M
PT900-LK-E
2. Cannon RE-350 Document Camera
PN: Re-350 DOCAM
3. Document Camera Cart
PN: RC-DOC-EC

Network Costs consist of monthly fees including the following:

1. Segment fees (network charges) of \$450 per month and IP address fees of \$12 per terminal per month (total of 14 terminals) billed through DAS IMServices and DAS Communications.
2. T-1 line fees of \$700 per month. Will link with existing T-1 line being run through NVCN.

Other: Cost of the maintenance of the equipment.

Other Costs: Conference room rental fees

Source of In-Kind Match and Documentation: In-kind match consists of General Funds and will be documented through daily and monthly internal time and energy reports currently used by the Commission.

Other External Funding Sources: This project is an expansion of an existing grant and equipment to provide services to the Scottsbluff area.